Mosquito News

Volume I, No 1 and 2 - - MARCH, 1941

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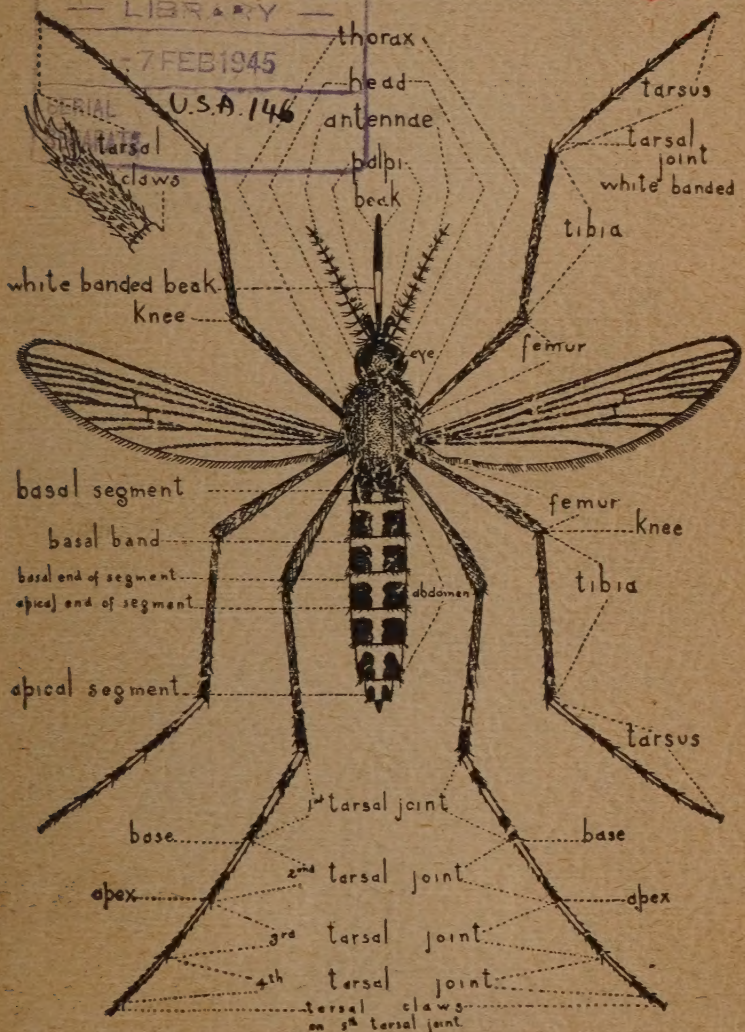

Issued By

Eastern Association of Mosquito Control Workers

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Eastern Association of Mosquito Control Workers

Vol. 1 March, 1941 No. 1

EDITORIAL COMMENT

Perhaps many of our readers deplore the hangeover of the Eastern Association from a on-dues paying organization to a dues paying roup. This feeling is probably more pronounc- l among those who have been unable to be pres- nt at the business meetings. Sometime ago, he feeling was expressed that the Association hould have a publication distributed to its embers giving news of interest to mosquito con- rol workers. A trial copy was distributed last ear which was well received and is republished n this issue, to assume the form decided on for uture issues. In order to meet the costs of oliciting articles, preparing material and print ng, the Association became a dues-paying organ- zation to finance the publication.

The success of this medium for exchanging nformation of value to all of us will depend ntirely on the interest, cooperation and con- ributions from every possible source. If such ontributions of material is not forthcoming, our committee will have nothing to print. From ow on, we urge you not to wait for a solicita- on from the committee to send material. Write o anything that might be of interest to others n the work and send it on to the committee. We ope to issue "Mosquito News" quarterly so they hould be published January 1, April 1, July 1, nd October 1. For the next issue on July 1, a eview of pre-season conditions, new equipment, udgets and such topics would be of interest to l.

House Organ of the Eastern Association of Mosquito Control Workers

Thomas J. Headlee

No association of technical men, such as compose the Eastern Association of Mosquito Control Workers, can long persist without a real objective. No group of men will continue to expend time and money on any organization that does not render a real service to the membership of that organization. Power and strength of an organization comes as a result of unified effort to accomplish a common purpose.

Where such men can meet together at frequent intervals for discussion and council, word of mouth communication and a record of minutes are sufficient. In a society like the Eastern Association of Mosquito Control Workers such frequent personal meetings are impractical. The next best method of keeping all informed and giving everyone a chance to describe his problems and express his point of view is a house organ. Therein lies the benefit and the service which a house organ for the Eastern Association of Mosquito Control Workers can give and render to its membership.

Committee: Lester Smith
R. Vannote
R. VanDerwerker

Mosquito Work of the New Jersey Agricultural Experiment Station

Thomas J. Headlee, Entomologist

From 1900 to 1904 Dr. John B. Smith, then entomologist, made extensive studies of the species of mosquitoes occurring within the state.

ese studies laid the biological basis for the rk on practical control that followed. Despite e short period of time occupied by his study, was pursued with such intensity and care that st of the important points in mosquito biology re well enough covered to permit the actual rk to develop on a sound basis. Naturally, ne has shown some exceptions to this rule but e points at issue have been cleared up as the eds of the practical work indicated.

The year 1905 was given over to trial and ror attempts to encourage local practical work, incipally by municipalities.

In 1906 the Experiment Station was author-ed by law to carry on practical mosquito con-ol work with principal, but not sole, reference the salt marsh. Practical work continued der this act until 1912 and for several years ter that date as rapidly as state appropria-ons for this purpose permitted.

In 1912 the formation of a new agency for squito control was authorized, known as County squito Extermination Commission. By law the periment Station was given direct responsibil-y for the work of this agency. To perform its ties in connection with the County Mosquito termination Commissions the Experiment Station st know the mosquito control problems in every unty and must stand ready to advise any com-ssion as requested. For purpose of co-ordina-on the Experiment Station was given plenary wer over methods and monies used by the County squito Extermination Commissions.

Since 1912 the Experiment Station has made its business to nurture and guide the practi-l mosquito control work of the County Mosquito termination Commissions, until at the present ne the Experiment Station serves as a co-ordin-ing agency of some twelve active County Mos-

quito Extermination Commissions within the State and attempts to pursue the researches which appear to be necessary to the practical mosquito control work of these commissions.

Non Member States

Dr. F. C. Bishopp

In a brief article it is obviously impossible to do more than mention the research and control activities directed against mosquitoes in the States that are not included in the field of activity of the Eastern Association of Mosquito Control Workers.

Research work on mosquitoes is being carried out mainly by the Rockefeller Foundation, with headquarters at Tallahassee, Florida, Mark F. Boyd in charge; by the United States Public Health Service at Savannah, Georgia, C. M. Mc Gill, acting in charge; and by the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, at Orlando, Florida, W. V. King in charge; at New Smyrna, Florida, George H. Bradley in charge; and at Portland, Oregan, H. H. Stage in charge. Research on certain mosquito problems is also going forward in California mainly under the direction of W. B. Herms, of the University of California. Incidental to control activities, some research information is being gathered in the Salt Lake City (Utah) Mosquito Abatement District, R. V. Chamberlain in charge, and in the DesPlaines Valley Mosquito Abatement District near Chicago, Illinois, J. Lyell Clarke in charge. In connection with research projects, mention should be made of the cooperative study of malaria and its control conducted by the Rockefeller Foundation, the Florida State Board of Health, Escambia County, and the City of Pensacola, with headquarters at Pensacola, Florida, with J. E. Elmendorf in charge; also of the research activities of the

Tennessee Valley Authority on malaria and related problems under the direction of E. I. Bishop.

The investigations at Tallahassee deal mainly with infection experiments with several species of ANOPHELES and with malaria in the treatment of paresis; those at Savannah deal largely with the biology and the natural and artificial control of anophelene mosquitoes. At Pensacola attention is being given to various procedures recommended for malaria-mosquito control and to means of cheapening these and making them more effective.

Investigations on ANOPHELES problems are being carried on by the United States Public Health Service at Memphis and Reelfoot Lake, Tennessee. Certain investigations on the distribution and habits of mosquitoes to form the basis of malaria-control activities are being carried on by health authorities in the Southern States, particularly in Georgia and Arkansas.

At the stations of the Bureau of Entomology and Plant Quarantine in Florida attention is given primarily to salt-marsh mosquitoes, their biology and control, as well as to the possibility of developing new larvicides applicable to various other species. The investigations at Portland, Oregon, deal mainly with the flood-water mosquitoes, particularly along the lower Columbia River, and include a study of the biology of these forms and the development of improved methods of control. Attention is also given to the breeding of ANOPHELES MACULIPENNIS, the principal malaria carrier of the West, and the relation of water impoundment to this and other species of mosquitoes.

The research at the University of California under the direction of W. B. Herms has been diverse, but it has dealt in a large degree with

the malaria-carrying species of that region and with the salt-marsh mosquitoes.

In connection with research work, reference should be made to taxonomic studies. The value of correctly identifying mosquitoes is well known. The leading authorities on mosquito identification in this country are Alan Stone and W. V. King and his associates, of the Bureau of Entomology and Plant Quarantine, the former in Washington and the latter in Orlando, Florida. Valuable taxonomic studies are being made by Members of the Eastern Association of Mosquito Control Workers, by members of the staff of the University of California, and by the Bureau of Entomology and Plant Quarantine employees at Portland, Oregan. Much taxonomic work is also being carried on by Robert Matheson of Cornell University, and L. E. Rozeboom of Johns Hopkins University is now devoting some attention to this field, especially with respect to the anopheline species.

It is important that we do not forget the valuable work on mosquitoes which is going forward in the Dominion of Canada. Arthur Gibson, for many years Dominion Entomologist, with headquarters at Ottawa, has been actively interested in mosquitoes. C. R. Twinn, of the Dominion staff, is doing excellent work on taxonomy of mosquitoes in Canada, and research on larvicides and other methods of mosquito control is going forward at the field laboratories of the Dominion Entomological service.

Throughout the South control of malaria mosquitoes is being vigorously prosecuted, mainly under the direction of the various State health departments. This work is more or less confined to the more populous areas and has consisted largely in draining or filling ANOPHELES breeding places. Much attention has

also been given to the development of methods of rendering drainage systems more permanent. The United States Public Health Service has given technical direction to a large part of this work, and that organization is conducting research along several lines relative to malaria-mosquito control at its station in Memphis, Tennessee.

One of the best large-scale anti-anopheline projects with which we are familiar is that carried out by the Tennessee Valley Authority under the general direction of E. L. Bishop at Chattanooga, Tennessee. In these operations malaria mosquitoes have been combatted by changing water levels, clearing the banks of reservoirs, and the application of paris green, by airplanes and otherwise, and oils as larvicides.

In California the anti-anopheline work is being carried out along with control activities against pest mosquitoes in a number of counties which have been organized under the State pest abatement laws.

Oregon has recently passed a pest-abatement law which it is believed will make anti-mosquito work in that state more effective. Control activities thus far have been largely in the vicinity of Portland under the joint auspices of the city of Portland, the county of Multonomah, and the Federal Works Progress Administration.

Mosquito control in the vicinity of Salt Lake City, has been under way for many years and has accomplished outstanding results. It has also been under way in the DesPlaines River Valley near Chicago for several years, and mosquito annoyance in the populous area affected has been very markedly reduced. The work there has been a combination of improved drainage, the use of larvicides, and the employment of natural enemies. Other mosquito operations have recently been undertaken in the vicinity of Chicago.

There is probably more anti-mosquito work going forward in Florida than in most of the Eastern States not in the Association. Seven counties have organized mosquito-control units dealing mainly with the salt-marsh problems. The necessity for controlling these pests, if the resorting possibilities of the State are to be fully developed, is being recognized.

Here and throughout the country local mosquito-control projects have been prosecuted during recent years largely with funds supplied by the Works Progress Administration. It is obviously impossible even to list these in a short article.

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ACTIVITIES OF EASTERN ASSOCIATION OF MOSQUITO CONTROL WORKERS

Twelve members attended the meeting and inspection trip in Virginia during the week of February 14th to 21st. At this meeting a committee was appointed to prepare this trial publication. Inspection of the work around Norfolk, Virginia Beach and Roanoke Island, North Carolina was carried on revealing a vast amount of mosquito control work in this area. Novel and interesting methods and equipment were viewed by the party. A very interesting feature was a boat trip through Dismal Swamp to Lake Drummond.

In Atlantic City on March 21 while attending the Annual Meeting of the New Jersey Mosquito Extermination Association, a meeting of the Executive Committee of the Eastern Association of Mosquito Control Workers was held at which the proposed new Constitution and By-laws were presented and discussed. An interesting feature to all of our members was a proposal to charge dues to cover the cost of a regular quarterly publication of which this is a sample.

It was also decided at this meeting to hold a series of one day inspection trips in Connecticut, New Jersey and Delaware and probably a fall discussion meeting shortly after the close of the mosquito breeding season. The first of these one-day inspection trips is now scheduled for Connecticut on June 27.

In January many newspapers informed us that Dr. L. L. Williams, Surgeon-General of the U. S. Public Health Service, Dr. H. A. Bush of Savannah, and Dr. Bruce Nayne of Columbia, S. C. had been sent to China to help institute a 5 year government campaign against malaria on the Burma-Yunnan border.

The Convention Banquet of the New Jersey Mosquito Association on Thursday evening, March 21 at 7:30 was a splendid dinner built up around roast breast of guinea hen as a piece de resistance. The address, an interesting recital of the growth and extension of mosquito control work, paying tribute to such devoted public servants as Doctors Howard, Smith and Headlee, and pointing out the results of such work, but stressing the need of publicity and educational work to overcome public ignorance and forgetfulness of mosquito control.

After everyone had partaken of this delicate and delicious feast and our very worthy President Siedler had given his address the new Association President Mr. Jalo W. Lehti was inducted into office and presented with his new gavel.

Mr. Robert D. Glasgow calls our attention to the following interesting results by Norman Taylor as presented in the New York State Museum Circular No. 23 (Nov. 1939, 42 pages, 19 figures and several tables) Norman Taylor reports field and laboratory studies exploring further one of the many avenues for investiga-

tion opened by his earlier studies of mosquito control ditching in relation to salt marsh vegetation (N.Y. State Museum Bulletin No. 316, 1938, pp 21-84 and Proc. of the 24th Annual Meeting of the N. J. Mosquito Extermination Ass'n., 1937 pp 211-217).

"In this circular, Taylor concludes that the very wide range of salt tolerance exhibited by all species of salt marsh plants, indicates that change of salinity resulting from ditching is probably of very minor importance among the factors which may be concerned in bringing about any change in the character of salt marsh vegetation."

Rowland E. Dorer of Norfolk, Va. disclosed to members of the Eastern Association a new and simple way of eliminating cattails in flooded areas.

At the New Jersey Convention Thomas D. Mulhern, Ditching Engineer of the N. J. Agricultural Experiment Station reviewed New Jersey mosquito work for 1939, and was very accommodating in giving us his concise report which also included his statistics on New Jersey work and trap catches.

Dr. Paul Jackmauh, Commissioner of Public Health in Massachusetts outlined the extensive and efficient survey made by his department on the relation of the mosquito to encephalomyelitis.

MOSQUITO CONTROL IN DELAWARE

For eight years the Department of Entomology of the Delaware Agricultural Experiment Station has been engaged in a campaign directed towards the elimination of the mosquito nuisance in that State. A basic survey of the local mosquito-control problem was made in 1932.

Control work under the supervision of the Delaware Mosquito Control Commission commenced in 1933. In 1934, an extensive investigational program was outlined and entered upon to supplement and to evaluate the results of the control project. In 1939 the Delaware State Highway Department was authorized and directed by legislative act to assume and continue the work for the control and elimination of mosquitoes heretofore conducted by the Delaware Mosquito Control Commission.

In view of the fact that mosquito-control operations, if effectively carried out, require a broad biological background and must be based on sound engineering principles, a formal agreement of cooperation has recently been made between the Department of Entomology of the Delaware Agricultural Experiment Station and the Delaware State Highway Department under which the specialized qualifications of the two departments are recognized, the line of demarcation between their respective functions in this field is set forth, and a program of control work and research activities developed by and mutually acceptable to both parties is outlined.

By Dr. L. A. Stearns

A new publication, "Companion to Mosquito Study" by Mrs. Mary N. Chenoweth, Chairman of Mosquito Control N. J. State Federation of Women's Clubs has been published and is available for distribution at the N. J. State Experiment Station. Your committee highly recommends this for additional information on mosquitoes and other insects and also for distribution to schools and clubs as reference work.

In the 1940 Proceedings of the N. J. Mosquito Extermination Association will be found a Symposium of methods for public education, as practiced by several counties, that was presented by Messrs. VanNote, Peterson, Tinny and

VanDerwerker. This described various methods using lectures, movies, exhibits, newspapers and distribution of literature.

S. L. Crosthwait, who served for two years as entomologist attached to the two Civilian Conservation Corps camps located in Worcester County, Maryland, has resigned his position with the University of Maryland, effective January 1, and is now associated with the Bureau of Biological Survey inspecting the results of the W. P. A. work against mosquitoes in the area from Virginia southward. His headquarters are Atlanta, Ga.

By Dr. E. N. Cory

At the New Jersey Convention Dr. J. G. Grimley, Special Deputy Commissioner from the New York City Department of Health in charge of the New York World's Fair presented a comprehensive report on the control of mosquitoes and other insects to prevent annoyance to the visitors in attendance at the World's Fair. New and different ideas in the handling of this problem were brought out in his report.

Also available in the N. J. proceedings will be a symposium on "Additional Information Needed by Mosquito Workers about Mosquitoes and Mosquito Control Processes" that was presented by Messrs. Hart, Mulhern and VanDerwerker. Good leads for research, invention and investigational work were suggested which if pursued to a satisfactory conclusion would solve problems for many of the field workers.

Milton H. Price, Super visor of Mosquito Control in Rhode Island should be congratulated on the work he is doing with available funds limited and reports he is carrying on interesting projects along the line of deepening swamp areas and improving swampy shore lines by filling to permit better control thru stocking with fish.

Russell Gies "Blitzkrieg" against New York City mosquitoes is fully described in his report at the Convention.

After studying and practicing all the latest methods of mosquito control if you find they don't work we suggest that you use the new mosquito repellent "Sta-Way" developed by Philip Granett and manufactured and distributed by the National Carbon Company.

J. Lyell Clarke, Sanitray Engineer of the DesPlaines Valley Mosquito Abatement District subjected himself as a human guinea pig in last year's experiments to find out if Culex-territans could really bite. If you want to know what Mosquito-Exposure-Minutes means, read his report.

The Eastern Association was represented by some New Jersey mosquito fighters who attended the Florida Anti-Mosquito Convention in April. They recommend that reports of that convention be obtained from the Secretary, Dr. G. F. Catlett, State Board of Health, Jacksonville, Florida.

Anyone desiring information on the work of the Tennessee Valley Authority on control and study of Anopheles-quadrimaculatus should read the report by Dr. E. L. Bishop in the Proceedings of the New Jersey Convention and the Florida Convention.

Further advancement in the use of heavy cleaning equipment is shown by the acquisition of Hydraulic suction dredge by the Hudson County Mosquito Extermination Commission and the building of another by the Four County Committee on the control of mosquitoes in the Passaic Valley in New Jersey.

An invitation by executive order from President Williamson for a study of ichthyology around Long Island will soon be very appropriate to members of the Eastern Association. This committee will make a preliminary review of this study if the President so desires. While this study is being made we might be able to locate Ray Sammis. We haven't heard from Ray since the convention in Atlantic City.

From Middlesex County in New Jersey, we have the word of final approval on their new garage and office building.

The Ocean County Mosquito Extermination Commission has just purchased a new cleaning machine for maintenance of salt marsh ditching.

Vol. 1 No. 2

BUSINESS OF THE EASTERN ASSOCIATION

Program for Association Activities in 1941

The 1941 program of the Eastern Association of Mosquito Control Workers, as agreed upon, will include the following activities:

I. Winter Meeting, New York City, January 24, 1941. Topics of Discussion- (1) "1940 Developments in Larvicide Spraying" by Dr. L. A. Stearns and Dr. J. M. Ginsburg; (2) "New Aspects of Biological Control" by Dr. R. D. Glasgow; (3) "Research Problems in Mosquito Control" by Dr. T. J. Headlee; and (4) "Outlook for Mosquito Control in 1941" by Mr. R. L. Vannote. Committee on Arrangements- Mr. R. W. Gies (Chairman), Dr. R. D. Glasgow and Mr. C. T. Williamson

II. Spring Trip to Tennessee Valley Purpose - to view anti-malarial work Committee on Arrangements- Mr. R. E. Dorer (Chairman), Dr. F. C. Bishopp and Dr. J. M. Ginsburg.

III. Summer One-Day Tours in the Association Area. Purpose - to inspect breeding conditions and control operations in and about military establishments. Committee on Arrangements - Mr. Milton Price (Chairman), Dr. R. B. Friend, Mr. R. H. Sammis and Mr. O. W. Lafferty.

IV. Annual Business and Discussion Meeting in the Fall.

ACTIVITIES OF MEMBER STATES

Mosquito Control Maintenance Work In Delaware 1940

E. Elwood Lynch

Due to a legislative act in September, 1939 mosquito control work was transferred to the State Highway Department. Funds made available for this project totaled $25,000.00. Actual operation did not begin until April, 1940, thus allowing approximately fifteen months to use allotted amount. This amount, being insufficient to carry on the work properly, made it necessary to do spot cleaning, in order to clean up many of the most serious breeding areas before the summer season. Very little new work was undertaken in order that most of the allotment could be used for actual ditch maintenance. The greater part of the cleaning being done by hand labor.

All experimental work was conducted by University of Delaware Agriculture Experimental Station and only a small percentage of the appropriation was used for that purpose.

The actual cleaning done for the season up to December 31, 1940 totaled about 11% of the total linear feet of ditch dug by the C. C. C. in Sussex County. In addition to the regular cleaning program the department was able to get a W. P. A. new ditching, outlet box and bridge project started. By the aid of this project several new arrowhead outlets were constructed in order to protect main ditch systems from being clogged with sand. The ditching being done in connection with outlet work. In addition to that several tractor bridges were constructed in order to facilitate transportation across the marshes.

Inspection was on a somewhat smaller scale

than usual, thus we were able to inspect only about half the marsh acreage in Sussex County. This acreage inspected being near the summer resorts. In addition to regular inspection work the force gave considerable assistance towards spot cleaning, and spray work.

Spraying last season was on a larger scale than for previous seasons due to the urgent need of ditch maintenance. Previous to last season practically all the spray work was done by use of a spray mounted on a pickup truck or by hand sprays. With the increase in the size of breeding areas and the many places found not convenient for pickup use, made it necessary to plan and mount spray equipment on our special marsh tread Cletrac tractors.

Rhode Island Mosquito Work

Milton H. Price reported that Mosquito work, as far as new construction is somewhat at a standstill and at the present time they are trying to obtain funds to maintain over $2,000,000 worth of work done. Since December 1st results look much more favorable and he believes that practically all of the work in the State will be maintained this spring.

Virginia Beach Organizes Mosquito Control District

by R. Dorer

On July 1, 1940 the Mosquito Control Commission of Virginia Beach and Princess Anne County began operations. The district was formed under a State Law passed in the legislature during the 1940 term. This law provided for a tax of 25¢ to $100. and has the added feature of the State contributing 25% of the funds collected locally up to $5,000.

B. G. Porter was appointed Commissioner from Virginia Beach and was elected Secretary-

Treasurer. W. Payton May was appointed Commissioner from Princess Anne County. Dr. I. C. Riggin, Virginia State Health Commissioner is Chairman Exofficio. R. E. Dorer has been appointed Deputy Chairman and R. H. Baillio has been appointed Superintendent.

Motorcycle Equipment

by R. Dorer

During the past summer the City of Norfolk Bureau of Mosquito Control acquired a new and and very efficient piece of equipment.

Specifications for a motorcycle rig for catch basin spraying were obtained from Mr. R. J. VanDerwerker, Supt. Union County Mosquito Commission, N. J. In general the Norfolk equipment follows the equipment built by Mr. VanDerwerker. A heavy duty motorcycle was obtained with a sidecar mounting on the left side. A 50 gal. tank was mounted on the sidecar chasis. The small motor with compressor specified in the Union County rig was left off. In place of this a small 10 gal. tank was mounted over the larger tank. The larger tank is filled about ⅔ full with oil, air is pumped into the remaining space. The small tank is used as an auxiliary air supply. When the pressure goes down in the fuel tank due to the drawing off of oil a valve is opened from the smaller tank allowing the pressure to be built up. Air is obtained at some convenient filling station and it has been found that one filling is enough to last one day.

A neat sign has been painted on the machine which reads "Mosquito Control". The equipment has proven very efficient in oiling catch basins and in answering complaints, but aside from this it has been worth its weight in advertising.

People from all walks of life have seen it about the City and have asked questions and are more aware of the Mosquito Control Work which is going on as a result of the use of this machine.

Connecticut Amends Mosquito Law

R. C. Botsford states that the work there consists of only routine maintenance since the reduction of W. P. A. assistance. He reports that, "The Connecticut General Assembly in the January session of 1939 amended the Mosquito Act, Sections 2415 and 2416. The revision substantially is as follows:

> "The director of the Connecticut Agricultural Experiment Station, the director of the State Water Commission, the superintendent of the State Board of Fisheries and Game, the Commissioner of Health, and one person appointed for a term of four years by the Governor, shall act as a Board of Mosquito Control and shall administer Section 2415 and Section 2416 of the General Statutes."

The following list comprises members of the State Board of Mosquito Control:

W. L. Slate, Director, Connecticut Agricultural Experiment Station, Box 1106, New Haven, Connecticut.

Sanford H. Wadhams, Director, State Water Commission, Torrington, Conn.

Dr. Russell P. Hunter, Superintendent, State Board of Fisheries and Game, State Office Building, Hartford, Conn.

Dr. Stanley H. Osborn, Commissioner of Health, State Office Building, Hartford, Conn.

E. Lea Marsh, Jr., (Governor's appointee), Old Lyme, Conn.

Director Slate was appointed temporary chairman and Doctor Hunter secretary until such time as plans for the organization are completed.

Middlesex County N. J., Builds New Quarters

by Lester W. Smith

The Middlesex County Mosquito Extermination Commission has moved into its new quarters erected by the Works Progress Administration on Parsonage Road, Menlo Park, New Jersey.

The property has a frontage of 150 feet and a depth of approximately 230 feet and is admirably situated with respect to the Main Highways of the County as Parsonage Road connects State Highway Route #27 with Superhighway Route #25.

The building which is a one story brick structure is forty feet wide and one hundred, nineteen feet long and is divided into three sections. The first or office Section consists of a Commission Meeting room, Clerk's office, a drafting and Mosquito identification room, together with a toilet and shower facilities for the office force. The Central section consists of a repair shop capable of handling two cars at once, Larvicide and tool room and a toilet with shower facilities for the Employees. The third Section consists of a storage garage in which we can house nine cars or trucks.

Large factory type steel sash furnish ample light throughout. The interior walls and ceilings of the office section are plastered and the floors are of hard wood, and raised approximately two feet above the concrete floors of the other sections.

The interior of the repair shop is finished in plywood and the interior walls of the rest of the building are stuccoed.

An oil burning heating unit is located in a basement beneath the office and space is provided in the basement for the storage of records.

Union County, N. J., Acquires New Quarters

by Ralph J. VanDerwerker

The Union County Mosquito Extermination Commission moved on July 1, 1940 to a new headquarters at 324 East North Avenue, Cranford, N. J. The property is 145 feet wide and 200 feet deep located in the center of Union County. State Highway Route #28 passes the front of the property and the Central Railroad of New Jersey passes the rear. A neat looking two room office building 14 feet by 38 feet with a finished basement for records provides excellent office facilities. A garage building 26 feet by 88 feet provides stalls for nine trucks or cars. There is a 2 story corrugated building 36 feet by 44 feet used for mixing and storing larvicides, tool room and equipment storage.

MOSQUITO CONTROL AND NATIONAL DEFENSE

Mosquitoes and National Defense

by Thomas J. Headlee, Entomologist

For the second time in the history of New Jersey mosquito work this country has had to undertake an intensive national defense program. National defense involves mosquito control, in the first place, because mosquitoes are the demonstrated vectors of the disease of malaria and, in the second place, because pest mosquitoes interfere seriously with the performance of labor involved in national defense.

In early times New Jersey was subject to one or more of the types of malaria but with the passage of time mosquito screening received wide

adoption and in the latter years the control of mosquito production became a definite and effective project and as a result malaria became scarce until now it occurs rarely, even sporadically.

Within recent years, however, there occurred a sporadic outbreak of malaria in the regio of Pennsauken Township of Camden County and 110 cases developed. This last outbreak which occurred in 1935 is sufficient to show that this disease is capable at any time under proper conditions of becoming a menace to the health of the people of this state.

The proper conditions are the presence of individuals in whose blood the malarial organism is present and the presence of an adequate number of the particular mosquito species which carries it. Put these two sets of conditions together and add to them a non-immune population and we have the conditions that are necessary for an outbreak.

In a defense effort, such as was carried on during the first World War and is now in process of development during this war, soldiers and civilian employees are shifted all over the United States and stationed in many cases in American tropics and sub-tropics, where the tropical malaria parasites abound. The chances, therefore, for the tropical malaria as well as other types to be carried within human carriers into areas such as New Jersey, where malaria is extremely rare or practically unknown, greatly multiply. It is definitely known that the species of mosquito which carries malaria from infected to uninfected is present in varying numbers more or less thruout the State. It is perfectly possible for the required conditions of the combined presence of human malaria carriers, mosquito vectors and a non-immune population to occur many times and at many places in New Jersey.

Since we have no means by which the malaria organism can be eliminated with certainty from the blood of infected persons, the only method of preventing the spread of malaria into New Jersey, by such means as above set forth is to cut down the malaria carrying mosquitoes to the lowest possible point.

Pest mosquitoes originating on the great salt marshes, fresh water swamp mosquitoes coming from the overflow lands on the upland and house mosquitoes breeding in polluted waters in populated districts are capable under proper conditions of becoming sufficiently abundant materially to interfere with the work and recreation of troops and workers in naval bases, forts, arsenals and defense industries.

This being the case what should New Jersey mosquito fighters do to prevent the development of malaria and to preserve the human health and comfort of New Jersey citizens, visitors and of bodies of men stationed at naval bases, forts, and arsenals within New Jersey's borders? The fact that in the first World War, in spite of what appeared to be favorable conditions, no outbreaks of malaria occurred in New Jersey is an entirely unsafe indication of what may occur this time because we have all of the conditions set for the propagation of the disease of malaria. Escaping an outbreak is just plain luck.

Considering that most of the naval bases, forts, arsenals, and defense industries occur within that portion of the state where anti-mosquito work has been pursued for many years, it is evident that the first procedure should be to continue the regular mosquito control program in those areas. Any change in the program should be a matter of intensification for the purpose of cutting down the mosquitoes occurring therein to a still lower point than

has hitherto been reached. In addition, plans for still more effective control of the mosquito pest, both from the health and pest angles, within naval bases, forts, arsenals and defense industries, as well as their environs, should be prepared and made ready for use whenever additional monies become available for carrying them out. In areas within this state where camps, forts, and defense industries are located in territory not served by active mosquito commissions plans should be set up as rapidly as possible for taking care of the health and pest situation within and throughout the environs of such camps, forts, and defense industries.

Some Federal monies have already been set aside for work of this kind throughout the United States and it is not unlikely that more will be provided if needed.

Mosquito control workers should, therefore, be on their toes ready and willing to go into the performance of duty of this character.

DEVELOPMENTS IN MOSQUITO CONTROL

Hudson County Dredging Operations

by L. DeWitt McCarter

The Hudson County Mosquito Extermination Commission, in the spring of 1940 placed into operation in Saw Mill Creek a hydraulic dredge. The dredge is a six (6) inch suction and six (6) inch discharge machine completely equipped with deck house, gasoline powered ladder, cutter, swinging rig, and spuds, and discharges thru an eight (8) inch pontoon and shore pipe line. The hull is welded steel construction, thirty-one (31) feet long, fourteen (14) feet wide and three (3) feet deep, made up in two (2) longitudinal sections and bolted together. The cutter ladder is designed for

an economic depth of ten (10) feet at an angle of forty-five (45) degrees.

The main pump is a Morris six (6) inch Type H and the main engine is a Buda Type J-H-6. The pump has been tested for a capacity of one thousand, two hundred and fifty (1,250) gallons per minute of mixture of silt, sand, gravel, and fresh water, with solids ten (10) percent by volume, this capacity being delivered against a total head of one hundred and twenty-five (125) feet.

The dredge is equipped with five hundred and ten (510) feet of eight (8) inch steel pontoon pipe and one thousand three hundred and twenty (1,320) feet of eight (8) inch steel shore pipe including sleeves and couplings. The equipment is unique in its entirety and the entirety and the entire design makes for ready dismantling and portability. Dredging was preferred over a drag-line because of the width of the creek and soft banks of the channels to be cleaned. Because of the need for crossing railroads, highways and other obstructions, the dredge had to be dismantled and transportable. Many dredge machines were considered, and it was finally decided that a machine owned by the City of Newark and which had been used in the reservoir at Charlottesburg, New Jersey, was most practical for our purpose. This is the machine which has just been described and was acquired by Hudson County from the City of Newark at a very attractive figure.

The program undertaken and commenced in the early spring of 1940 was the restoring of Saw Mill Creek from the Public Service Private Road to the Hackensack River. Originally this water course was navigable and was approximately 80 feet in width and of sufficient depth to safely accommodate barges and small craft. Thru disuse and neglect as well as changing physical conditions the creek became obstructed and over-

grown. In many parts it was completely overgrown and it was not possible to discern any water course whatsoever. On the commencement of the work of restoration it was necessary to excavate a pit in the creek bed of sufficient size and depth to launch and set up the dredge. This was done by drag-line and subsequently the dredge was launched and assembled. When the actual operation commenced great difficulty was encountered in handling root clumps and masses of water-logged cat-tail roots. It was found necessary in order to prevent frequent clogging of the pump that a rather unusual operation of the dredge be followed. The dredge operator raised the ladder so that it was directly beneath the surface of the water and then swept from side to side thus forcing the root clumps to either bank where shore men equipped with potato hooks were able to drag the clumps up on the bank and clear of the cutter head. Thereafter, the dredge operator would gradually lower the ladder and with the cutter head in operation cut and suck the silt to the desired depth. Thereafter the dredge followed and as it progressed restored the creek to an average width of fifty (50) feet and an average depth of six (6) feet between the points indicated. It has been found that in operation this dredge equipment functions with greater speed than another type of equipment which might be used, it is also found that our operating expenses were considerably less than would have been incurred in the use of drag-line or similar machinery. The cost to this Commission of the complete operation was further reduced due to the fact that we were able to operate our dredge by W. P. A. man power. The complete job is most satisfactory in appearance and in function. The drainage effected by the improvement is far superior than that which heretofore occurred and permits a much speedier discharge of water accumulations in the Saw Mill Creek area.

After the completion of the foregoing job the dredge was dismantled and trucked to Penhorn Creek in Secaucus at a point adjacent to Secaucus Road and the Pennsylvania Railroad right-of-way. As in the preceding instance it was necessary to excavate a pit in which to set up the machine. The operation in Penhorn Creek which is now under way extends from the intersection of Penhorn Creek and the Pennsylvania right-of-way to State Highway, Route #3.

A somewhat different condition is encountered in this creek. In the vicinity of the piggeries it is found that a solid layer of pig manure of approximately four (4) feet in thickness above water level occurs. In other sections adjacent to the piggeries manure, refuse and a miscellany of waste material occurs to a height of approximately twenty (20) feet above water level. Penhorn Creek was originally a navigable stream and at the point now being treated was of an average width of eighty (80) feet and of sufficient depth to float medium size craft.

Our dredge is now proceeding through this section and restoring the creek to an average width of fifty (50) feet and an average depth of six (6) feet. However, it must be observed that when ground has thawed it may be necessary to cut the creek to a greater width in order that the slide of soft material and manure which is present will not block the channel recreated. At the present time approximately 800 lineal feet has been cut and the operation will be continued until the section is completed. Thereafter it will again be necessary to dismantle and move the equipment to another section of Penhorn Creek where a like operation will be conducted. When completed Penhorn Creek will have been restoredfor its entire length affording increased efficiency in the drainage of the Secaucus meadows.

Mosquito Control in Impounded Waters

by R. J. VanDerwerker

The Union County Mosquito Extermination Commission of New Jersey has solved a serious mosquito breeding problem in an unusual manner. Surprise Lake, a small fresh water pond, 9000 feet long and very narrow and shallow had a badly overgrown swamp at the head of the pond. The upper 4000 feet of the pond which was about 300 feet wide was overgrown with swamp laurel and brush. After each rain this flooded and produced broods of several species of mosquitoes. Anopheles quadrimaculatus were plentiful in the area.

In June 1939, the Commission began working with its Northwest 3/8 yd. Crane to excavate a wide, deep channel through the middle of the swamp. The excavated material was deposited along the edge of the swamp and graded back on a slope. 68,289 cu. yds. was handled of which about 18,289 cu. yds. was grading or re-handling. The Park Commission has graded some of the dirt with a bull-dozer and expect to complete the grading in 1941. Total labor cost for brushing, grading and operating the crane was $3,898.10. When the pond is full of water the completed area has a center channel 6 feet deep and about 40 feet bottom width with sloping banks and top width of about 80 feet. Abundant small fish, formerly screened out by vegetation can now work through the whole area from the lower part of the lake to prevent mosquito breeding.

Mosquito Oils and Larvicides

by Joseph M. Ginsburg

Mosquito Oils - Laboratory and field tests with various petroleum distillates, conducted

n New Jersey over a period of some twelve years, ave shown that petroleum oil films kill mosqui- o larvae by the following method. While in the rocess of breathing on the water surface, the arva also draws in oil from the surface film in- o its tracheal system by the flaps, in case of nopheles, and by the breathing tube in case of ther species. After penetration the toxicolog- cal effect will vary with the type of petroleum roduct used. Oils of low boiling range and of igh volatility will exert a direct toxic action ithin a very short time. On the other hand, igh boiling, non-volatile, viscous oil will lowly cause death by suffocation, after the racheal stems have become filled with oil. The ate of penetration seems to be proportional irectly to the thickness of the film and in- ersely to the viscosity of the oil.

The information secured from these experi- ents have simplified the problem of working out pecifications for efficient mosquito oils. In eneral, the oil should contain enough of a low oiling petroleum fraction to insure quick pene- ration into the tracheal system and rapid kill f larvae and pupae; and a sufficient quantity a high-boiling fraction to leave a lasting lm. In general, the following specifications hould be considered in selecting an efficient osquito oil.

Oil Specifications

Type of Oil----------Distillate fuel
Gravity (A.P.I.)----------27-33
Flash, degrees F.----------130 or higher
Viscosity S.U;(a) 100°F------35-40
Odor----------sweet(non-offensive)
Distillation, degrees F. ---------

10% - 430 - 450)
50% - 510 - 550) -(Killing fraction)

90% - 630 or higher (Lasting fraction)

Such an oil can be readily obtained from most of the oil refineries at a cost varying from 5.5 to 8 cents per gallon depending on quantity purchased and transportation expense. In the field it spreads well, produces practically 100 per cent kill of larvae and pupae within one hour, leaves a stable film, and is not disagreeable to the oiling crew. These specifications are not rigid and can be readily modified to meet different requirements. The low boiling fraction may be decreased in areas where high temperatures prevail and where spreading and penetration are comparatively rapid, and increased where waters are cool or during seasons of low temperatures.

Larvicides - Ever since the New Jersey Pyrethrum Mosquito Larvicide has been developed to control mosquitoes in breeding waters where oil is objectionable, the writer has conducted experiments with various synthetic organic chemicals with the purpose of either entirely or partially replacing the pyrethrum extract, the most expensive ingredient in the formula, without, of course, reducing its effectiveness. The original formula calls for a concentrated emulsion consisting of about 2/3 light petroleum distillate, in which enough pyrethrum extract is incorporated to equal one pound of pyrethrum flowers (analyzing 0.9 per cent pyrethrins) per gallon; 1/3 water and about 0.5 per cent neutral emulsifier, such as sodium lauryl sulfate. This stock emulsion is well mixed and diluted with 10 to 12 parts of water before spraying.

Extensive laboratory and field tests during the last three years have definitely shown that by incorporating a small amount of thiodipheny-

mine (phenothiazine) into the pyrethrum extract, is possible to increase the toxicity of pyrethrins to such an extent that extract of only about half a pound of pyrethrum flowers per gallon oil (instead of one pound) is sufficient for e preparation of the larvicide. This offers a bstantial financial saving. The new larvicide n, therefore, now be purchased at reduced cost om the Seacoast Laboratories, Inc., 156 Perry reet, New York City, who were licensed by the dowment Foundation of Rutgers University(owners patents on this formula) to manufacture and ll this product at fairly low prices.

Mrs. A. S. Chenoweth, Chairman, Mosquito ntrol Committee of the New Jersey State Federion of Women's Clubs and author of the interting booklet "Companion to Mosquito Study", s again contributed a valuable idea to the blicity side of mosquito control in New Jersey. e suggested a slogan on a sticker to be used envelopes by all the Commissions in New Jery which has been attached below.

MORE EASE, LESS DISEASE
NEW JERSEY
MOSQUITO CONTROL

REVIEW OF BOOKS AND PUBLISHED ARTICLES

"Mosquito Control" a complete and thorough book on osquito control procedure, organization and roblems as practised in California, with suggestions for such units in other areas has been ritten by William B. Herms and Harold F. Gray f the Alemeda County Mosquito Control District, alifornia. It was published by The Commonwealth und, New York City and costs $3.50.Your Committee feels that this book is one of the most useul guides on costs, organization and methods et published.

PERSONAL NOTES

New Jersey lost its oldest mosquito control worker with the death of Bill Erhart last December. Some 37 years ago Bill started mosquito control work in the employ of the Board of Heal in the City of Newark. His duties at that time consisted of the installation of ditches on the Newark Meadows with the "True" Ditching Machine In 1912 he was employed by the Essex County Mosquito Extermination Commission and served as an Inspector, Foreman and Field Supervisor. Bill Erhart was well known in mosquito control circles and participated in many meetings and fiel trips.

Robert L. Mentzer, former Field Engineer o Mosquito Control in Delaware County, Pennsylvan worked during 1940 with Dr. L. A. Stearns, Dela ware State Entomologist on mosquito research pr lems and trap studies for the Delaware Highway Department. Since November 11th, 1940, he has been with the Engineering Department of Hercule Powder Company at Wilmington, Delaware.

Dr. A. E. Stene of the Rhode Island Depart ment of Agriculture and Conservation has retire from active work in state affairs.

MEETINGS AND CONVENTIONS

New Jersey Mosquito Extermination Association, Hotel Chalfonte-Haddon Hall, March 19-21, 1941.

The Florida Anti-Mosquito Association will meet on April 25 & 26, 1941 at Hotel Windsor in Jacksonville, Florida. On April 25th, the papers and discussions will cover Malaria work. The banquet will be held that evening. On the 26th salt marsh mosquitoes will be discussed.

Proposed field trip of Eastern Association to Tennessee Valley Authority now being planned for May.

California state convention sometime in June.